PRO-ACT FACT SHEET

Need more information?
Call PRO-ACT DSN 240-4214, (800) 233-4356

Hazardous Materials and Wastes: Labeling and Related Requirements

April 1997 - TI#12801

Introduction

Many operations and activities conducted at Air Force bases require the use of products containing hazardous chemicals. The use of these products often generates wastes that are also hazardous. In order to protect workers, the public, and the environment from exposure to these hazards, it is critical that these products and wastes be used and managed in a safe manner. This requires knowledge on the part of personnel handling these materials, who must be aware of which materials are hazardous, what the hazards are, and how to prevent releases, accidents, and exposures. There are numerous Federal and State regulations that are designed to ensure personnel have this knowledge. This fact sheet covers the basic information requirements for managing hazardous products and hazardous wastes, including the transportation of hazardous wastes, with specific emphasis on packaging, labeling, marking, and paperwork requirements.

Products Containing Hazardous Chemicals

Hazardous Chemicals

While some products are clearly dangerous, most seem relatively harmless under normal conditions. Unfortunately, common sense is not always an adequate guide in determining the hazards posed by many products. The Occupational Safety and Health Administration (OSHA) assists workers in obtaining the information they need to accurately assess the hazards associated with the materials they work with. OSHA has defined a hazardous chemical as any chemical which is a physical hazard or a health hazard (Title 29 of the Code of Federal Regulations (CFR) Part 1910.1200). OSHA has further defined the criteria for physical and health hazards:

If a chemical is a physical hazard, then there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive), or water-reactive. These chemicals are capable of physically damaging tissues through heat, pressure, or chemical reaction.

Chemicals that pose health hazards may cause either acute or chronic effects on the health of exposed employees. These chemicals include carcinogens, toxic or highly toxic agents, reproductive toxins (mutagens and teratogens), irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes. A single study conducted in accordance with established scientific principals which provides statistically significant evidence for health effects is enough to warrant classifying a chemical as a health hazard.

It is the responsibility of the chemical manufacturer (or importer) to conduct the required scientific testing to determine if a chemical poses a physical or health hazard. The end user is not required to make this determination.

OSHA has also established criteria for hazardous chemicals in mixtures. Products which contain a hazardous chemical at a concentration greater than one percent (by weight or volume) are regulated as hazardous chemicals, unless testing of the mixture as a whole has shown that it is not a physical or health hazard. If a constituent chemical is classified as a carcinogen, and is present at a concentration greater than 0.1%, then the mixture is assumed to present a carcinogenic hazard.

There are a number of important exemptions from the hazard communication standards promulgated by OSHA. These exemptions are listed in 29 CFR 1910.1200(a)(6), and include: hazardous wastes, tobacco products, wood products, most foods and drinks, medicines and cosmetics, consumer products used in a duration and frequency of exposure not greater than what consumers experience when using the product. Additionally, articles, manufactured items (not fluid or particle) formed to a specific shape or design during manufacture (where the shape or design is integral to their use), and which do not release more than trace amounts of hazardous chemicals during normal use are exempt from 29 CFR 1910.1200 requirements. If installation personnel are uncertain about the applicability of the standard to a particular product, they should contact Bioenvironmental Engineering.

The OSHA Hazard Communication Standard

Installations are required by 29 CFR 1910.1200 (e) to develop, implement and maintain a written hazard communication program. The program requires the installation to maintain a list of hazardous chemicals present in the workplace. In addition, it describes how labels and other forms of warning are maintained, how and where material safety data sheets (MSDSs) are kept, and how employee training and information requirements will be met. The written hazard communication program also must describe methods used to inform employees about the hazards of non-routine tasks and the hazards associated with unlabeled pipes in their work areas. Specific labeling, MSDS, and training requirements are discussed below.

Labeling Requirements

Chemical manufacturers are required by 29 CFR 1910.1200 (f) to ensure each container of hazardous chemicals shipped is labeled, tagged, or marked with critical hazard information. This information includes the identity of the hazardous chemical(s) in the product, the appropriate hazard warnings (e.g., irritant, flammable, etc.), and the name and address of the chemical manufacturer. This labeling provides the installation with the information needed to comply with the workplace labeling requirements in 29 CFR 1910.1200 (f) (5-9). Installations must ensure that each container is labeled, tagged, or marked with the identity of the hazardous chemical(s) in the product and appropriate hazard warnings in words, pictures, symbols or some combination that gives at least general information on the chemical's hazards. Alternatively, the installation importer or other responsible party may use signs, placards, process sheets, batch tickets, written operating procedures, or other written materials to inform employees of chemical hazards, so long as the containers to which the warnings apply are clearly identified. The labels or other written materials must be clearly legible, in English (translations into other languages may be added to the English text), and prominently displayed or readily accessible to employees throughout the work shift. Portable containers used to transfer hazardous chemicals that will immediately be used by the employees performing the transfer need not be labeled.

Material Safety Data Sheet (MSDS) Requirements

The purpose of a MSDS is to inform employees of the hazards and routes of exposure associated with the chemicals they work with, to describe precautions for safe handling, to provide information on measures that should be taken in an emergency (such as a spill or fire) and to provide medical personnel with information needed to treat employees who suffer from overexposures to the chemicals. MSDSs are frequently organized into specific sections that include the information required by 29 CFR 1910.1200 (g).

The preparation of MSDSs is the responsibility of the chemical manufacturer or importer. According to 29 CFR 1910.1200 (g) (6), chemical manufacturers must provide the MSDS with the first shipment of the hazardous chemical, and with the first shipment made after the MSDS is revised. The chemical manufacturer must also provide the MSDS upon request. It is the responsibility of the installation to request a MSDS if one is not provided with the initial shipment. If the installation has lost an MSDS, or has illegible copies, a new MSDS must be requested from the manufacturer or distributor.

Installations must maintain copies of MSDSs for each hazardous chemical in the workplace, and must ensure that they are readily accessible to employees when they are in their work areas. It is not sufficient to have a central collection of MSDSs where employees must leave their work area to view them. Paper copies of the MSDS are not required if electronic access, microfiche or another alternative format exists and does not create any barriers to

employee access in each work area. If employees must travel between work areas during a shift, MSDSs need only be kept in the primary work area, provided that there is immediate access to them in an emergency. It is permissible to change the form of a MSDS to include them in operating procedures or manuals, and they may be designed to cover groups of hazardous chemicals where it may be more appropriate to address the hazards of a process. Again, the information must be complete and readily accessible. MSDSs must be provided upon request to OSHA inspectors.

Employee Information and Training Requirements

Employees must be given effective information and training at the time of their initial assignment to a work area where hazardous chemicals are used, and whenever a new hazard is introduced for which they have not received prior training. The information and training may be designed to cover types of physical and health hazards; however, chemical-specific information must always be available through labels and MSDSs.

Installations must inform each employee of the training requirements of 29 CFR 1910.1200 (h); any operations in their work area involving hazardous chemicals; and the location and availability of the written hazard communication program, the list of hazardous chemicals, and the required MSDSs.

Hazardous Waste Generator Container and Tank Requirements

Hazardous wastes are defined and regulated by the Resource Conservation and Recovery Act (RCRA). RCRA contains very specific requirements for managing and labeling of containers and tanks that are used to accumulate or store hazardous wastes. Once an installation has determined that a generated solid waste stream is a listed or characteristic hazardous waste, the requirements of RCRA take effect. The container and labeling requirements of RCRA apply to large (>1000 Kg hazardous waste generated per month) and small (>100 and <1000 Kg per month) quantity generators. It is important to note however, many States have received authorization to administer their own hazardous waste programs. While many States have simply adopted or incorporated the Federal regulations, some States have enacted more stringent regulations which installations must comply with. The specific RCRA container requirements are discussed below.

After generation, hazardous wastes are transferred to either containers, most commonly 55-gallon drums, or tanks. This transfer typically takes place at or near the point of generation in an area known as a satellite accumulation point. When the container is full, it is then transferred to an accumulation site. Different regulations apply to the containers at the satellite points and accumulation sites.

Initial Accumulation (Satellite) Points

An initial accumulation (satellite) point is defined in 40 CFR 262.34 (c) as an area where up to 55 gallons of hazardous waste, or 1 quart of acutely hazardous waste, is initially collected. Initial accumulation points are located at or near the area where the waste is generated. These points must be maintained by, and under the control of the operator of, the process which generates the hazardous waste. Once the volume limits in the initial accumulation point have been reached, the installation has three days to transfer the container to the accumulation site. There is no specific time limit on how long an unfilled container may remain in the initial accumulation point as long as the total hazardous waste volume does not exceed 55 gallons (or 1 quart of acutely hazardous waste).

The containers being filled in an initial accumulation point must be in good condition, compatible with the wastes, and kept closed except when waste is being added to the container. Each container must be labeled either with the words "Hazardous Waste" or with other words that identify the contents of the container. It is good management practice to include both of these on the label. Within three days after the volume limit for the initial accumulation point is reached, the container must be transferred and marked with the date that the volume limit was reached. This date is the beginning of the 90-day accumulation period for large quantity generators of hazardous wastes.

Containers in Accumulation Sites (90-Day Storage Area)

Installations that store hazardous wastes for more than 90 days (180 days for small quantity generators) are required to obtain a RCRA permit as a Treatment, Storage and Disposal (TSD) facility. The permitting process and permit compliance measures are often arduous, and most installations avoid them if possible by shipping all wastes off site for disposal within the 90-day accumulation period. Accumulation sites which hold hazardous wastes for less than 90 days must have a sign that identifies the area as containing hazardous wastes and includes the words "No

Smoking." The accumulation site must be maintained and operated to minimize the possibility of fire, explosion, or unplanned releases. Generators are required to inspect accumulation sites to identify leaking or deteriorating containers so that measures can be taken to contain or prevent releases. For the purposes of emergency preparedness and prevention, installations are required to have an internal communication or alarm system, a telephone or 2-way radio in or near the accumulation site, portable fire extinguishers, spill control equipment, and a reliable fire-fighting water source nearby. A written contingency plan is also required (40 CFR 262.34, 265.32 and 265.52).

In addition to these requirements, accumulation sites are required to have a containment system which includes: an impervious base free from cracks or gaps; a means of draining and collecting precipitation and leaks and spills; a capacity to hold 10% in excess of the combined volume of all the containers or the volume of the largest container, whichever is greater; and a means of preventing run on into the containment system or the capacity to contain all of the run on. As a good management practice, large and small quantity generators should adopt these measures for their accumulated sites to minimize the potential for releases.

After transferring containers from the initial accumulation point to an accumulation site, requirements for managing the containers become somewhat more rigid. The containers must be tightly sealed, and they must not be leaking, bulging, rusting, or badly dented. The containers must be compatible with the wastes, and containers of incompatible wastes must be separated. If a container was used previously, the waste must not be incompatible with the former contents and residue in the container. The containers must be stored in a manner that allows for access for inspection and emergency response, and they must be moved about and handled in a safe manner. Containers should not be stacked more than two high, and have pallets between them. Containers of highly flammable wastes must be electrically grounded. At least three feet of aisle space should be provided between rows of containers. Containers holding ignitable or reactive wastes must be placed at least 50 feet from the installation property line.

The EPA has recently codified additional requirements for containers of volatile organic hazardous wastes in order to control air emissions. These containers are required to be closed with covers that permit no detectable organic emissions. Volatility testing for each waste is required, or the cover must meet Department of Transportation (DOT) standards. If the covers are equipped with safety devices for venting, there must be no detectable emission, and they must be kept closed except when inspecting the container or adding waste. Routine venting is not permitted.

All containers in accumulation sites must be marked with the words "Hazardous Waste." The accumulation start date (the date the container reached the 55-gallon limit for satellite accumulation and was required to be transferred to the accumulation site or storage area) must also be on the label.

Containers or liners that contain residues of materials that are hazardous wastes when discarded are subject to all the above requirements, unless the containers meet the RCRA standard as "empty" as defined in 40 CFR 261.7. A container or liner is empty if all materials that can be removed through normal procedures (pouring, pumping, etc.) have been removed, and the residue is less than 1 inch deep or is no more than 3% of the total original weight (0.3% for container over 110 gallons). If the material is an acutely hazardous waste, the container or liner must be triple rinsed with an appropriate solvent or cleaned with an equivalent method.

Tanks Used to Accumulate Wastes

All tanks used to accumulate hazardous wastes must be marked with the words "Hazardous Waste." The tanks must be labeled to identify the contents of the waste and the label must include the appropriate hazardous waste codes listed in 40 CFR 261. The accumulation start date (the date the first wastes were placed in the tank) must also be on the label. In addition, tanks are required to meet the standards in 40 CFR 265 Subpart J for accumulation in tanks. These standards are complex and fall into several categories. They include: assessment of tank integrity; design requirements for new tank systems; containment and detection of releases; general operating requirements; tank inspections; and responses to leaks and spills. There are restrictions on the accumulation of ignitable, reactive, and incompatible wastes in tank systems (40 CFR 265.198-199), as well as detailed requirements to control the release of volatile organic compounds (40 CFR 265.1085-1091).

Transportation of Hazardous Wastes

Transportation of hazardous wastes are subject to combined regulation by both the EPA and the Department of Transportation (DOT). There are four main areas within these regulations: container requirements; labeling and marking; shipping papers; and waste hauler requirements. Each of these areas is reviewed below. A critical

reference for determining how to meet all EPA and DOT shipping requirements is a table of hazardous materials located in 49 CFR 172.101. This table lists hazardous materials, their hazard classification, identification numbers, and packaging requirements. These items are required for proper paperwork, labeling, marking, and placarding.

Container Requirements

The EPA requires that containers be properly constructed and that there are no leaks, bulges, or corrosion. Specific requirements on the construction, specifications, and certification of containers used to transport hazardous wastes off base are given in 49 CFR 173, and 178. Both the EPA and the DOT require that the waste container be compatible with the waste placed in it. For example, placing acids in steel drums and solvents in plastic drums, should be avoided.

Labeling and Marking

In addition to any labels and markings placed on containers during accumulation or storage, there are also transport-related labeling and marking requirements. The EPA requires that each container have a label that conforms to DOT requirements (40 CFR 262.31). Specifically, this label must identify the hazard class of the wastes in accordance with 49 CFR Table 172.101. The label must be highly visible and located near the required markings discussed below. The DOT has developed highly specific criteria for these labels, that are met by commercially available labels.

The EPA further requires that each container be marked with the following words and information (40 CFR 262.32 and 49 CFR 172.304):

HAZARDOUS WASTE — Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.

Generator's Name and Address: _____

Manifest Document Number: _____

Commercially available stickers include these requirements, and have spaces for the DOT marking requirements, the EPA waste codes, and the accumulation start date. These stickers are generally applied when the container is first transferred to the accumulation area, well before transport off base. Some States have additional unique marking requirements that must also be met.

The DOT has additional marking requirements described in 49 CFR 172.301 and 172.302. These include the Proper Shipping Name of the waste (see 49 CFR 172), and the appropriate United Nations (UN) or North American (NA) 4-digit identification code (see Table 172.101). These markings are also required for bulk shipments in tankers.

Shipping Papers

The EPA or State Hazardous Waste Manifest (EPA Form 8700-22) meets the DOT shipping paper requirements (49 CFR 172.205). Instructions for completing the form are provided by the State or in the Appendix to 40 CFR 262. This form provides detailed information concerning the identification of the waste and the quantity shipped. It also details the name, address, and phone number of the waste generator, the waste hauler, and the destination TSD facility. Copies of the form are retained by each party and copies are forwarded to the appropriate State(s). This allows regulators to track the waste from the point of generation to its ultimate disposal or treatment.

The manifest may be used to ship more than one type of waste, but the form must include the Proper Shipping Name, Hazard Class, ID Number, EPA waste codes, and Emergency Response Guide Number for each waste. The number and type of containers, and the total quantity of each waste must also be included on the form. This information must match the markings and labels on the containers, and must include all the waste streams and account for the full volume of the wastes.

The EPA also requires that Land Disposal Restriction (LDR) notification forms accompany the hazardous waste manifests (40 CFR 268.7). These forms are intended to inform the destination TSD facility of the appropriate treatment standards for the wastes required prior to land disposal. If no treatment is required, the form includes a signed certification to that effect.

Waste Hauler Requirements

Shipping companies that transport hazardous wastes are required to obtain a transporter's EPA Identification Number (40 CFR 263.11). States may require an additional authorization number. The transporter must also comply with the manifesting and record keeping requirements contained in 40 CFR 263.20.

In addition to general transporter requirements listed in 49 CFR 171 to 179, waste haulers must display the appropriate placards on each side and end of the vehicle. The placards must meet detailed DOT specifications and correspond to the wastes being transported. If more than one waste type is in the shipment, the transporter may include all the appropriate placards or use the "DANGEROUS" placard (49 CFR 172.504).

For More Information

Additional information on hazardous waste management can be found in Air Force Pamphlet 32-7043 "Hazardous Waste," which is available from PRO-ACT.

E-mail PRO-ACT

PRO-ACT Home | CrossTalk | Fact Sheets | Technical Inquiries
Research Services | Feedback | Search PRO-ACT